

CLAIMS

1. A method of preparing shrimps, comprising the following steps:

5 a) steam boiling said shrimps at a high pressure exceeding the atmospheric pressure, and at an elevated temperature exceeding the boiling temperature of water at the atmospheric pressure for a specific period of time for keeping the meat of said shrimps in a compressed state due to the pressurization, while rapidly heating said shrimps to said elevated temperature for causing the meat of said shrimps to solidify and to loosen from the shells of said shrimps;

10 b) rapidly cooling said shrimps to a temperature at or below the atmospheric temperature for causing substantially all meat of said shrimps to be separated from the shells of said shrimps between an area behind the head of the individual shrimp and a part above the tail of the individual shrimp;

15 c) peeling said shrimps by mechanically opening the shells of the shrimps for allowing the meat loosely contained within the shells of said shrimps to fall out from the shells of said shrimps;

20 d) separating the meat of said shrimps from the remains of the shrimps, including the shell parts and any eggs, by flotational separation of the meat from said remains by introducing the meat and said remains into a separation liquid such as a brine solution, including a specific amount of NaCl by weight for causing the meat to float on said separation liquid while allowing the remains of the shrimps, including the shell parts and any eggs, to sink; and

e) removing the meat from said separation liquid.

25 2. The method according to claim 1, said pressure in step a) being in the range of 4-20 bar.

30 3. The method according to claim 1, said temperature in step a) being in the range of 150°C-250°C.

4. The method according to claim 1, said specific period of time in step a) being less than 20 sec.

5 5. The method according to claim 1, said temperature in step b) being in the range of 0°C-20°C.

6. The method according to claim 1, said boiling being performed in a pressurized boiler in a continuous operation.

10 7. The method according to claim 1, said boiling being performed in a pressurized boiler in an intermittent batch operation.

8. The method according to claim 1, said rapid cooling being performed by introducing said boiled shrimps into a water cooling bath.

15 9. The method according to claim 1, said separation being performed in an aqueous solution of NaCl, including 6-14% NaCl by weight.

20 10. The method according to claim 1, further including, prior to step d), a step selected from the group consisting of forcedly introducing said peeled shrimps into said separation liquid and stirring said peeled shrimps in said separation liquid for causing a physical separation of the meat from the remains of said shrimps, including said shell parts and any eggs.

25 11. A plant for preparing shrimps, comprising:

a) a boiler section for steam boiling said shrimps at a high pressure exceeding the atmospheric pressure, and at an elevated temperature exceeding the boiling temperature of water at the atmospheric pressure for a specific period of time for keeping the meat of said shrimps in a compressed state due to the pressurization while rapidly heating said shrimps to said elevated temperature for causing the meat of said shrimps to solidify and to loosen from the shells of said shrimps;

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b) a cooling section for rapidly cooling said shrimps to a temperature at or below the atmospheric temperature for causing substantially all meat of said shrimps to be separated from the shells of said shrimps between an area behind the head of the individual shrimp and a part above the tail of the individual shrimp;

5 c) a peeling section for peeling said shrimps by mechanically opening the shells of the shrimps for allowing the meat loosely contained within the shells of said shrimps to fall out from the shells of said shrimps;

10 d) a flotation separation section for separating the meat of said shrimps from the remains of the shrimps, including the shell parts and any eggs, by flotational separation of the meat from said remains by introducing the meat and said remains into a separation liquid such as a brine solution, including a specific amount of NaCl by weight for causing the meat to float on said separation liquid while allowing the remains of the shrimps, including the shell parts and any eggs, to sink; and

15 e) a transfer section for removing the meat from said separation liquid.

12. The plant according to claim 11, said pressure generated in said boiler section being in the range of 4-20 bar.

20 13. The plant according to claim 11, said temperature generated in said boiler section being in the range of 150°C-250°C.

14. The plant according to claim 11, said specific period of time of boiling said shrimps in said boiler section being less than 20 sec.

25 15. The plant according to claim 11, said temperature of said cooling section being in the range of 0°C-20°C.

16. The plant according to claim 11, said boiler section including a pressurized boiler for performing said boiling operation as a continuous operation.

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17. The plant according to claim 11, said boiler section including at least two pressurized boilers for intermittent operation of said boilers in a batch process.

18. The plant according to claim 11, said pressurized boiler having a top inlet and a bottom outlet for the introduction of said shrimps and the discharge of boiled shrimps, respectively.

19. The plant according to claim 11, said cooling section having a cooling container including a cooling water bath for receiving said boiled shrimps from said boiler section.

20. The plant according to claim 11, said peeling section including a plurality of oppositely rotating rollers for mechanically compressing and cracking the shells of said boiled and cooled shrimps.

21. The plant according to claim 20, said rollers having an outer diameter of approximately 30 mm, defining a spacing between any two adjacent rollers on the order of 1 mm, the plant further including a mechanism to rotate the rollers at a speed of approximately 30 rpm.

22. The plant according to claim 11, said separation section including a separation container having an inlet end for receiving said peeled shrimps from said peeling section and an outlet end communicating with said transfer section and including a NaCl solution including approximately 6-14% NaCl by weight, and having a bottom outlet for the removal of said remains from said separation container.

23. The plant according to claim 22, said outlet end of said container of said separation section defining an overflow for allowing said separation liquid to flow out from said separation container carrying along the meat of said shrimps.

24. The plant according to claim 22, further comprising means for mechanically steering said peeled shrimps at said inlet end of said container for causing a physical separation of the meat from the remains of said shrimps.

25. The plant according to claim 21, said separation container of said separation section including, at said inlet end, a separation wall for causing said peeled shrimps to be forcedly introduced into said separation liquid for causing a physical separation of the meat from the remains of said shrimps.